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基于医学影像存档与传输系统的独立教学系统的研发

Development of an independent tutorial medical imaging system based on PACS

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英文关键词:Medical imaging Picture archiving and communication system Computer-assisted instruction

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中文摘要：

目的 开发一种基于PACS的独立的教学系统,便于不同层次学生方便地学习各系统疾病的诊断与鉴别诊断。方法 使用放射科信息系统(RIS)服务器作为系统服务器,总体采用B/S架构,Microsoft SQL 2005作为数据库,以ASP.NET为基本开发技术。使用JavaScript+DOM(文档对象模型)实现客户端的人机对话。软件构建完毕后,根据不同学习对象输入教学大纲、知识点和鉴别诊断知识点,并将PACS中的教学病例与知识点相关联。结果 系统成功建立,主要包括软件架构和教学内容两大部分。授权用户登录后可进入"学习应用"界面,包含"学习中心"和"在线测试"。学习中心包括:教学大纲、知识点(含临床、病理、流行病学、影像学等内容)、鉴别诊断要点、PACS中相关病例链接。在线测试则包含不同难度的题库,系统自动评判对错。管理员拥有"数据维护"和"系统管理"两大权限,可对教学相关的目录、大纲、教学资源、试题和试卷进行维护,也可管理用户身份和权限。结论 成功地建立了一种基于PACS的独立教学系统,能满足不同层次学生的需求,有助于提高医学影像学教学水平。

英文摘要：

Objective To develop an independent tutorial medical imaging system based on PACS, enabling comprehensive and systemic learning of diagnosis and differential diagnosis of diseases. **Methods** A radiology information system (RIS) server was used as the system server. B/S architecture was adopted. Microsoft SQL 2005 was employed as the database. The programming language was ASP.NET. JavaScript+DOM were applied for human-computer interaction in the client. The tutorial program included an object oriented learning strategy and keynote projects for identification and diagnosis of diseases. Interactions of some valuable cases in the PACS were made with the keynote projects. **Results** The tutorial software included two parts, i.e. the software architecture and the tutorial program. The authorized users would be able to log onto the interface of "learning and practice", which included "learner's center" and "online test". The learner's center offered a learning strategy, a number of keynote projects (clinical practice, pathology, epidemiology, and iconography, etc.), and tips for diagnosis and sample clinical cases in PACS. The online test provided an examination pool with a range of difficulty levels and an automatic scoring system. The system administrator would be authorized for the maintenance of the list of programs, learning strategy, teaching materials, examination questions and answer sheets. The system administrator would also be engaged in the management of identities and authorization of users. **Conclusion** An independent tutorial medical imaging system based on PACS is successfully developed. It serves to the needs of students with a range of academic levels, and will significantly improve the teaching level of medical imaging.

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